

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
26 May 2005 (26.05.2005)

PCT

(10) International Publication Number
WO 2005/048357 A1

(51) International Patent Classification⁷: **H01L 31/115**,
G01T 1/24

(21) International Application Number:
PCT/US2003/035726

(22) International Filing Date:
10 November 2003 (10.11.2003)

(25) Filing Language: English

(26) Publication Language: English

(71) Applicant (*for all designated States except US*): **II-VI
INCORPORATED** [US/US]; 375 Saxonburg Boulevard,
Saxonburg, PA 16056 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **SZELES, Csaba**
[HU/US]; 1745 Hedwig Drive, Allison Park, PA 15101
(US). **VYDYANATH, Honnavalli, R.** [US/US]; 21832
Seacrest Lane, Huntington Beach, CA 92646 (US).

(74) Agents: **LOGSDON, William, H.** et al.; Webb Ziesen-
heim Logsdon Orkin & Hanson, P.C., 700 Koppers Build-
ing, 436 Seventh Avenue, Pittsburgh, PA 15219-1818 (US).

(81) Designated States (*national*): AE, AG, AL, AM, AT (util-
ity model), AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA,
CH, CN, CO, CR, CU, CZ (utility model), CZ, DE (util-
ity model), DE, DK (utility model), DK, DM, DZ, EC, EE
(utility model), EE, EG, ES, FI (utility model), FI, GB, GD,
GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR,
KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN,
MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT (utility
model), PT, RO, RU, SC, SD, SE, SG, SK (utility model),
SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ,
VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (*regional*): ARIPO patent (BW, GH,
GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW),
Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE,
SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA,
GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— *with international search report*

*For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.*

(54) Title: RADIATION DETECTOR

(57) Abstract: A radiation detector made from a compound, or alloy, comprising $\text{Cd}_x\text{Zn}_{1-x}\text{Te}$ ($0 \leq x \leq 1$), an element from column III or column VII of the periodic table in a concentration about 10 to 10,000 atomic parts per billion and an element selected from the group consisting of La, Ce, Pr, Nd, Pm, Sm, Eu, Gd, Tb, Dy, Ho, Er, Tm, Yb and Lu in a concentration about 10 to 10,000 atomic parts per billion exhibits full electrical compensation, high-resistivity, full depletion under an applied electrical bias and excellent charge transport.

WO 2005/048357 A1